TIPS FOR USING PORTABLE HALF-INCH EQUIPMENT®

(The equipment referred to directly in most cases is Sony AV Series.)
Information from Parry Teasdale, Videofreex, New York City

THREADING

Threading is the first step toward making a videotape.

Make sure the machine is turned off and there's no whirring sound coming from the heads.

Make sure your deck is in the STOP position besides being OFF—those are two different things. If you leave it ON—in a motor position—you'll have a chance of threading wrong.

The heads spin at a high rate, if they're still moving when you're threading, the tape can become caught and damage the heads and/or tape.

Check the threading diagrams.

Watch tape coming off and going on to take up reel to see that it's moving smoothly and regularly. If something goes wrong put machine in STOP and wait till heads stop spinning and then try to correct error.

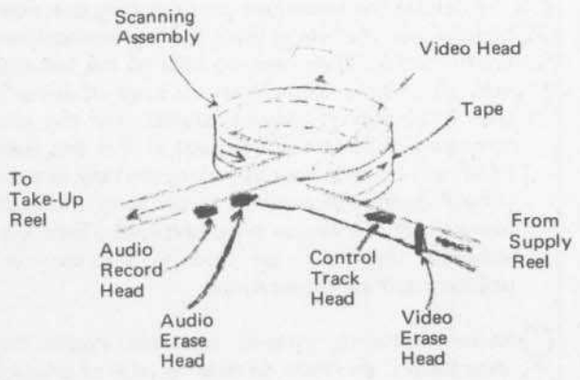
A lot of times the tape will sit on the edge of a roller—you've got to watch and see that it's moving smoothly.

The last thing to check your threading is put it in play—watch the tape path. Look to see that it's moving smoothly.

Put machine in play—the AV machine is marked Forward FWD—the CV and any portable deck without playback put into record or "Standby" and Record.

These machines are fairly tolerant so that you don't have to worry a lot if you make a mistake as long as you correct it fairly soon.

The first thing you should check when something goes wrong is the threading.



TAPE

Most manufacturers make reels so you can only put them on the deck one way.

There is only one side of the videotape you're supposed to record on.

There are two different types of helical scan tape in the market now.

1. *Oldest type—is shiny on outside and duller on recording side.*
2. *New type—called "dull back" tape is extremely dull on outside and shiny on recording side. The difference is a lot clearer.*

(Unconfirmed) There is soon to be (not presently available) a third type made by 3M. A chromium dioxide tape which will cost the same but supposedly has no drop out and the signal to noise ratio is very low. Older machines will have to be adjusted to accept it because it requires a different recording current.

Computer Tape:

Don't use computer tape. Computer tape isn't hard enough to withstand the pressure of impact of the video heads. (What happens to the tape?) Nothing. But an oxide builds up on the video heads. They get very dirty and will break if enough residue gets on them.

Tape is Sensitive To:

1. *Moisture—can cause dropout*
2. *Magnetism (like power supply from Electric Generator, voltage regulator, top of monitor)*
3. *Heat*
4. *Touching recording surface at all with your hands causes grease deposits.*
5. *Mutilation—getting caught in machinery or twisted. Remove portion that is wrinkled.*
6. *Dust*

Problems:

The most common problem is dropout.

The recording surface is coated with an Iron Oxide. As long as the continuity of the oxide isn't broken the tape is intact and won't show any defects. If the oxide is disturbed (grease, scraping, crumbling, moisture, etc.) then dropout, which is lack of Oxide on the Tape, results. This shows up on the Monitor as a white line at bottom of screen and moves rapidly to top. There is no way to replace lost oxide—can't recoat. There are commercially produced dropout compensators which hide *but don't* replace *dropout.*

Any sudden momentum change other than motor function to STOP can cause problems: 1. Tape gets caught under lip of reel—chips oxide. When played will hear a buzzing sound. Should be physically edited out of tape. 2. Can get off tape path and become enmeshed in mechanism of machine. Damaging tape and machine.

Handling:

Don't handle the parts you want to look at. Make sure your hands are clean. Handling the leader is OK as long as you don't put it across the heads as it would deposit a layer of oil.

However, the tape is essentially rugged and strong and responds well to strain and tension, and can be rerecorded.

BATTERIES

Check by putting record lever into record.

They usually last 30 minutes. You can count on good strong power for no longer than that.

The battery meter does not register in rewind.

Old batteries from CV can be adapted to work with AV series.

The instruction book is very clear about how to insert the batteries in the back of the pack.

If they're charged simply put the machine in play.

The AV model has two batteries that put out 12 volts. The old deck (CV model) uses the same batteries but in a different configuration.

There are two ways to tell when the batteries are going. One way is the battery charged meter on the deck. The other is when you can see the picture start to flutter (in the camera), then it starts to be impossible to focus. If these two things happen, your batteries are low. Change them or recharge them.

All decks, when purchased new, come with a charger which also acts as a power supply. The deck and camera run off DC power. If you want to use wall current, which is AC, use the power supply/adaptor.

Cine 60 Battery Belt will supply from 2-4 hours of power for portable tape recorder from 12 volt source output. Rechargeable but expensive.

Sony claims to have new more efficient batteries.

*Creeping Crud *tends to get on terminals of batteries and on deck preventing batteries from making contact—you get partial power or no power. Take emory cloth or sandpaper and scrape or brush till shiny.*
**corrosion*

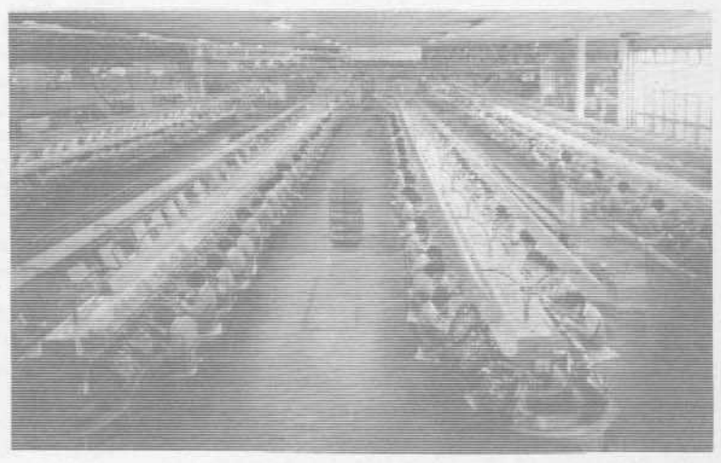
CONSUMER ELECTRONICS SHOW DAILY

Magnetic tape will be unaffected by nuclear radiation until the dosage approaches a 100 megarep level, 200,000 times greater than the fatal dosage for 50% of the exposed humans. Radiations of this level tend to increase the layer-to-layer signal transfer or "print-through," but normally would not be serious enough to prevent information retrieval. This very high radiation level will also have some physical effect on the tape coating and backing, which will show significant embrittlement, and can reduce the wear life by as much as 60%.
Under proper storage and handling conditions, magnetic tape has the ability to retain intelligence for an indefinite period of time. The most important consideration is to preserve the medium so that adequate head-to-tape contact can be maintained when the tape is used again.

—from *Educational Television* May 1969

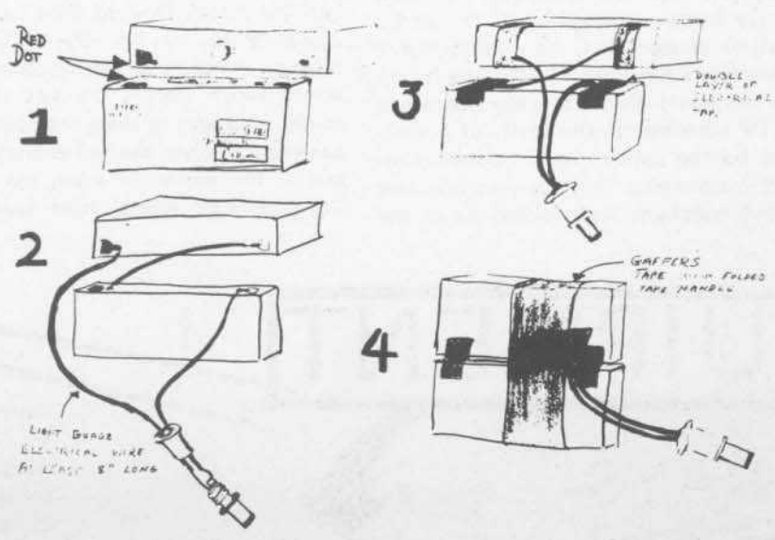
MICROPHONES

The microphone that's built into the camera is an adequate low impedance omnidirectional microphone for unharried rooms. Basically what happens is you get all the background noise which sometimes drowns out the voice you want. You can bypass the camera mike by plugging another mike into the deck with a minijack. (Sony uses these for all audio connections on half inch and can be purchased in any hi-fi store.) When you plug a microphone into the mike input on the deck, it cuts off the mike in the camera. You can't use both. If you want to use more than one microphone, you need a microphone mixer.



Source: Scientific American, March 1970

Diagram: Adapting old "gel cell" batteries



MAINTENANCE OF DECK

Keep the heads clean.

Cleaning Video Heads: popsicle stick with chamois cloth glued to one end dipped in alcohol. Don't use cleaning stick for cleaning video heads when it becomes visibly dirty.

Other Heads: use cotton swabs with rubbing alcohol.

Tape Guides: clean strongly.

Degaussing (demagnetizing): a degausser can be bought commercially to demagnetize the heads. Cover metal tip with one layer of plastic electrical tape.

Not wise to oil the deck. Squeeks are usually caused by something else.

Handling: Pick deck up with two hands. Don't pick up by strap which causes banging.

The video heads sit on a bar and spin very quickly. On the tips there are very brittle pieces of metal which can break easily. Don't slam anything on them.

Track: is a control for playback only. When playing back you'll see that there's some undesirable type lines that pop up in the picture—a small horizontal snowstorm which you can get rid of by adjusting the tracking knob (basically a head positioning mechanism).

CAMERA: DON'T POINT THE CAMERA AT A DIRECT SOURCE OF LIGHT

Maintenance: Put the cap on the lens. If you've lost the cap, put the lens in the case.

Storing: Don't store it pointing down. This would cause a residue to fall on the face of the vidicon. There's a very delicate phosphorus grid and phosphorus screen coating on the front. If the residue falls on that it can score the vidicon. It shows up in the picture as a dark spot. There's no way to correct it. So, store the camera tilted upward or level, on its side, or upsidedown, as long as you don't point the lens down.

Though the camera is pretty rugged, treat it with care. There are components inside that can be broken.

All the cameras come with stops that block dirt or anything that can get on the face of the vidicon.

Flickering: means the horizontal frequency is off and needs adjusting.
Someone said the cameras won't work in the Subway.